CLAIMS

1. An optical measuring apparatus, comprising

an optical scanning system for supplying to a device under test electromagnetic energy at a plurality of periodically varying wavelengths,

a measuring circuit for measuring electromagnetic energy from the device under test, and

a synchronizer, including a device responsive to the electromagnetic energy from the optical scanning system to provide a known response to one or more wavelengths of the electromagnetic energy to synchronize the measuring circuit with the optical scanning system.

2. The apparatus of claim 1, wherein the device responsive is a wavelength reference.

3. The apparatus of claim 2, wherein the wavelength reference device provides a specific wavelength dependent response.

4. The apparatus of claim 2, wherein the wavelength reference is a gas cell.

5. The apparatus of claim 2, wherein the wavelength reference is a Fabry Perot device.

6. The apparatus of claim 1, wherein the device responsive provides known absorption or transmission maxima or minima.

7. An optical testing instrument, comprising

a tunable illumination source for illuminating a device under test using electromagnetic energy having a wavelength that is swept over a wavelength band,

a wavelength dependent transmission responsive device to determine one or more distinct wavelength points in the sweep of the illumination source, and

a measuring circuit synchronized to the wavelength dependent to measure illumination from the device under test over at least a range of the wavelength band.

8. The instrument of claim 7, said wavelength dependent transmission responsive device comprising a gas cell.

9. The instrument of claim 7, said wavelength dependent transmission responsive device comprising a Fabry Perot device.

10. A method of testing an object using electromagnetic energy, comprising

illuminating the object using electromagnetic energy while sweeping the electromagnetic energy over a range of wavelengths,

measuring electromagnetic energy from the object in response to such illuminating,

coordinating the measuring step with one or more distinct wavelength points of the sweep determined by a wavelength dependent transmission device to which the electromagnetic energy is directed.

11. The method of claim 10, said coordinating comprising directing electromagnetic energy through a gas cell.

12. The method of claim 10, said coordinating comprising directing electromagnetic energy to a Fabry Perot device.

13. A system for measuring electromagnetic energy from a device under test that is illuminated with electromagnetic energy at a wavelength that is swept over a range of wavelengths, comprising

a measuring system for measuring electromagnetic energy from the device under test, and

a periodic wavelength reference having a detectable distinct response to a distinct wavelength of such electromagnetic energy to indicate to the measuring system

occurrence of such distinct wavelength as a reference point to synchronize measurements with the sweeping of the wavelength of the electromagnetic energy.

14. The system of claim 13, said reference comprising a gas.

15. The system of claim 13, said reference comprising a Fabry Perot device.

16. The system of claim 13, further comprising a source of electromagnetic energy and wherein the wavelength of the source is swept in a known way over a range of wavelengths.

17. A light instrumentation system for measuring optical power or intensity of an input as wavelength of the input varies with respect to a time, comprising

a reference providing a detectable optical power or intensity upon encountering a wavelength having a prescribed value, and

a detector system coordinated with the reference and providing a detectable feature for measuring the optical power or intensity.

18. An apparatus for coordinating a series of optical measurements of an object illuminated by a tunable or scanning light source, characterized in that the tunable light source illuminates the object over a number of wavelengths while measurements with respect to the object are made to obtain respective data points, and the tunable laser source illuminates a reference of which measurements are taken to provide wavelength reference points with which to coordinate the data points obtained by measurements of the object.

19. A method for coordinating a series of optical measurements of an object illuminated by a tunable or scanning light source, characterized in that the tunable light source illuminates the object over a number of wavelengths while measurements with respect to the object are made to obtain respective data points, and the tunable laser source illuminates a reference of which measurements are taken to provide wavelength

reference points with which to coordinate the data points obtained by measurements of the object.